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10/804,659	03/19/2004	Sung-Jin Lee	678-1407	8028
66547 7590 04/04/2008 THE FARRELL LAW FIRM, P.C. 333 EARLE OVINGTON BOULEVARD SUITE 701 UNIONDALE, NY 11553				
EXAMINER				
PHUNG, LUAT				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/804,659

Applicant(s)

LEE ET AL.

Examiner

LUAT PHUNG

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 December 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-85/86)
Paper No(s)/Mail Date 07 Nov 2007
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Inventor's Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Applicant's arguments with respect to claims 1-30 have been considered but are moot in view of the new ground(s) of rejection. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The rejections and/or objections in this office action are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

2. On page 12, regarding amended independent claim 1, applicant argues that: Flykt fails to disclose the transmission of a time extension message for a mobile IPv4 address from a first access node to a second access node when a mobile node that has moved from the second access node to the first access node transmits the time extension message to the first access node. Sundquist and Abrol fail to remedy this deficiency.

Examiner respectfully disagrees because:

As noted in the rejection of claim 1, Sundquist discloses transmitting a time extension message for the second mobile IPv4 address (binding update packet with IPv4 address embedded in IPv6 address per para. 43) to the second access node (home agent per para. 43) when the time extension message is received from the second mobile node. (IPv4 address in use path per Fig. 3, elements 301, 303; para. 43)

3. On page 13, regarding amended independent claim 15, applicant argues that:

[Sundquist] fails to disclose a message sent to update the border router that includes a previous IPv6 address and a new IPv6 address. Flykt and Abrol both fail to remedy this deficiency of Sundquist.

Examiner respectfully disagrees because:

As noted in the rejection of claim 15, Sundquist discloses a mobile node sending a normal binding update and the home agent performing binding between the care-of address and the home address (i.e., second and first mobile IPv6 addresses, respectively) when a mobile node moves to a new care-of address (NO path from element 301 indicating IPv6 in use per Fig. 3; NO path from element 402 indicating IPv6 in use per Fig. 4; binding of care-of address and home address per para. 40; processing when IPv6 is in use at mobile node and home agent per para. 43-46; para. 6). It is obvious to one of ordinary skill in the art at the time of the invention that both IPv6 addresses must be included in the message for the border router to perform binding by identifying the pending connection/subscriber using the previous address and updating the mobile node's current address using the new address.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1, 2, 8, 9, 15-22, 23, 24, 27 and 28 are rejected under U.S.C. 103(a) as being unpatentable over Sundquist (US Pub. 2004/0136382).

Regarding claim 1, Sundquist discloses a method for assigning a mobile Internet protocol (IP) address in a first access node of a mobile communication system having the mobile IP address, the method comprising the steps of:

assigning a first mobile IPv6 address available in the first access node to a first mobile node upon receiving a request for assignment of the first mobile IPv6 address from the first mobile node; (para. 36)

assigning a first mobile IPv4 address to the first mobile node until expiration of a predetermined time, upon receiving a request for assignment of the first mobile IPv4 address from the first mobile node; (para. 36, 52)

assigning a third mobile IPv6 address (Fig. 3, element 300; para. 43, line 8) to a second mobile node when the second mobile node has moved from a second access node to the first access node; (para. 43) and

transmitting a time extension message for the second mobile IPv4 address (binding update packet with IPv4 address embedded in IPv6 address per para. 43) to the second access node (home agent per para. 43) when the time extension message is received from the second mobile node. (IPv4 address in use path per Fig. 3, elements 301, 303; para. 43)

Sundquist does not specifically disclose a mobile node that was assigned a second mobile IPv6 address and a second mobile IPv4 address. However it is obvious to one of ordinary skill in the art that the mobile node that moves is the same as that was assigned a first mobile IPv6 address and a first mobile IPv4 address in order to continue receiving service (para. 36).

Regarding claim 2, Sundquist does not explicitly disclose a mobile node defines an access node that initially assigns a Mobile IP address from the mobile communication system, as a home network. Examiner takes official notice that it is well known in the art that a mobile node first receives services through its home network, i.e., the mobile node is initially assigned a Mobile IP address by its home network.

Regarding claim 8, Sundquist discloses an apparatus for assigning a mobile Internet protocol (IP) address in a first access node of a mobile communication system having the mobile IP address, the apparatus comprising:

means for assigning a first mobile IPv6 address available in the first access node to a first mobile node upon receiving a request for assignment of the first mobile IPv6 address from the first mobile node; (para. 36)

means for assigning a first mobile IPv4 address to the first mobile node until expiration of a predetermined time, upon receiving a request for assignment of the first mobile IPv4 address from the first mobile node; (para. 36, 52)

means for assigning a third mobile IPv6 address (Fig. 3, element 300; para. 43) to a second mobile node when the second mobile node has moved from a second access node to the first access node; (para. 43) and

means for transmitting a time extension message for the second mobile IPv4 address (binding update packet with IPv4 address embedded in IPv6 address per para. 43) to the second access node (home agent per para. 43) when the time extension message is received from the second mobile node. (IPv4 address in use path per Fig. 3, elements 301, 303; para. 43)

Sundquist does not specifically disclose a mobile node that was assigned a second mobile IPv6 address and a second mobile IPv4 address. However it is obvious to one of ordinary skill in the art that the mobile node that moves is the same as that was assigned a first mobile IPv6 address and a first mobile IPv4 address in order to continue receiving service (para. 36).

Regarding claim 9, Sundquist does not explicitly disclose a mobile node defines an access node that initially assigns a Mobile IP address from the mobile communication system, as a home network. Examiner takes official notice that it is well known in the art that a mobile node first receives services through its home network, i.e., the mobile node is initially assigned a Mobile IP address by its home network.

Regarding claims 15, 23 and 27, Sundquist discloses a method for transmitting data between a first mobile communication network and a second mobile communication network in a border router of a mobile communication system utilizing a mobile Internet protocol (IP) address, the method comprising the steps of:

receiving a first mobile IPv6 address and a first mobile IPv4 address from a mobile node; (Fig. 1a and 1b; para. 36)

storing the first mobile IPv6 address and the first mobile IPv4 address; (Fig. 6; para. 37; para. 51)

transmitting a packet using the stored mobile IP addresses when packet data transmitted from the mobile node belonging to the first mobile communication network to the second mobile communication network is received (para. 51).

Sundquist does not explicitly disclose updating and storing the first mobile IPv6 address to a second mobile IPv6 address when the first mobile IPv6 address and the second mobile IPv6 address are included in a location update message received from the mobile node. However Sundquist discloses a mobile node sending a normal binding update and the home agent performing binding between the care-of address and the home address (i.e., second and first mobile IPv6 addresses, respectively) when

a mobile node moves to a new care-of address (NO path from element 301 indicating IPv6 in use per Fig. 3; NO path from element 402 indicating IPv6 in use per Fig. 4; binding of care-of address and home address per para. 40; processing when IPv6 is in use at mobile node and home agent per para. 43-46; para. 6). It is obvious to one of ordinary skill in the art at the time of the invention to store the new address and update using the new address upon receiving the location update message with both the previous and new IPv6 addresses in order to ensure continued connectivity when the mobile node moves and is assigned a new IP address.

Regarding claims 16, 24 and 28, Sundquist further discloses wherein the first mobile communication network performs communication using the first mobile IPv6 address. (Fig. 1a, element 102)

Regarding claim 17, Sundquist further discloses wherein the second mobile communication network performs communication using the first mobile IPv4 address. (Fig. 1a, element 101)

Regarding claim 18, Sundquist further discloses further comprising the steps of: storing tunneling information in an IP mapping table upon receiving the tunneling information from each mobile node; (para. 37) and

transmitting packet data by tunneling based on the tunneling information. (para. 35)

Regarding claim 19, Sundquist discloses an apparatus for transmitting data between a first mobile communication network and a second mobile communication

network in a border router of a mobile communication system utilizing a mobile Internet protocol (IP) address, the apparatus comprising:

means for receiving a first mobile IPv6 address and a first mobile IPv4 address from a mobile node; (Fig. 1a and 1b; para. 36)

means for storing the first mobile IPv6 address and the first mobile IPv4 address; (Fig. 6; para. 37, 51)

means for transmitting a packet using the stored mobile IP addresses when packet data transmitted from the mobile node belonging to the first mobile communication network to the second mobile communication network is received (para. 51).

Sundquist does not explicitly disclose means for updating and storing the first mobile IPv6 address to a second mobile IPv6 address when the first mobile IPv6 address and the second mobile IPv6 address are included in a location update message received from the mobile node. However Sundquist discloses a mobile node sending a normal binding update and the home agent performing binding between the care-of address and the home address (i.e., second and first mobile IPv6 addresses, respectively) when a mobile node moves to a new care-of address (NO path from element 301 indicating IPv6 in use per Fig. 3; NO path from element 402 indicating IPv6 in use per Fig. 4; binding of care-of address and home address per para. 40; processing when IPv6 is in use at mobile node and home agent per para. 43-46; para. 6). It is obvious to one of ordinary skill in the art at the time of the invention to store the new address and update using the new address upon receiving the location update

message with both the previous and new IPv6 addresses in order to ensure continued connectivity when the mobile node moves and is assigned a new IP address.

Regarding claim 20, Sundquist further discloses wherein the first mobile communication network performs communication using the first mobile IPv6 address (Fig. 1a, element 102).

Regarding claim 21, Sundquist further discloses wherein the second mobile communication network performs communication using the first mobile IPv4 address (Fig. 1a, element 101).

Regarding claim 22, Sundquist further discloses further comprising:

means for storing tunneling information in an IP mapping table upon receiving the tunneling information from each mobile node; (para. 37) and

means for transmitting packet data by tunneling based on the tunneling information. (para. 35)

8. Claims 4, 11, 25, 26, 29 and 30 are rejected under U.S.C. 103(a) as being unpatentable over Sundquist in view of Flykt, et al (US 7,191,226).

Regarding claim 4, Sundquist discloses all of the subject matter as previously recited in this office action except further comprising the step of receiving at the first access node a time extension message for the second Mobile IPv4 address from the second access node. Flykt from the same or similar fields of endeavor discloses further comprising the step of receiving at the first access node a time extension message for the second Mobile IPv4 address from the second access node. (Fig. 8; col. 6) Thus it would have been obvious to the person of ordinary skill in the art at the time of the

invention to combine the extension messages of Flykt in the method for assigning a mobile IP of Sundquist by using the extension messages to manage the pool of IPv4 addresses when a mobile node moves to another access node. The motivation for doing so would have been to efficiently manage the scarce IPv4 addresses.

Regarding claim 11, Sundquist discloses all of the subject matter as previously recited in this office action except further comprising means for receiving at the first access node a time extension message for the second Mobile IPv4 address from the second access node. Flykt from the same or similar fields of endeavor discloses further comprising means for receiving at the first access node a time extension message for the second Mobile IPv4 address from the second access node. (Fig. 8; col. 6) Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to combine the extension messages of Flykt in the apparatus for assigning a mobile IP of Sundquist by using the extension messages to manage the pool of IPv4 addresses when a mobile node moves to another access node. The motivation for doing so would have been to efficiently manage the scarce IPv4 addresses.

Regarding claims 25, 26, 29 and 30, Sundquist discloses all of the subject matter as previously recited in this office action except:

determining whether the mobile node was assigned the second mobile IPv6 address, when one of the assigned first mobile IPv4 address and a second mobile IPv4 address is extended; and

generating extension information of the first mobile IPv4 address if it is determined that the mobile node is not assigned the second mobile IPv6 address, and

generating extension information of the first mobile IPv4 address, including information on a network from which the mobile node is assigned the first mobile IPv6 address, information on the first mobile IPv4 address and information on the second mobile IPv6 address, if it is determined that the mobile node is assigned the second mobile IPv6 (Mobile IPv6) address, as recited in claims 25 and 29; and

transmitting the second mobile IPv6 address and the first mobile IPv6 address to the border router, when the second mobile IPv6 address is received from the second access node, as recited in claim 26 and 30.

Flykt from the same or similar fields of endeavor discloses:

determining whether the mobile node was assigned the second mobile IPv6 address, when one of the assigned first mobile IPv4 address and a second mobile IPv4 address is extended; (col. 5, 6) and

generating extension information of the first mobile IPv4 address if it is determined that the mobile node is not assigned the second mobile IPv6 address, and generating extension information of the first mobile IPv4 address, including information on a network from which the mobile node is assigned the first mobile IPv6 address, information on the first mobile IPv4 address and information on the second mobile IPv6 address, if it is determined that the mobile node is assigned the second mobile IPv6 (Mobile IPv6) address; (col. 5, 6) and

transmitting the second mobile IPv6 address and the first mobile IPv6 address to the border router, when the second mobile IPv6 address is received from the second access node. (col. 5, 6)

Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to combine the extension messages of Flykt in the apparatus for assigning a mobile IP of Sundquist by using the extension messages to manage the pool of IPv4 addresses when a mobile node moves to another access node. The motivation for doing so would have been to efficiently manage the scarce IPv4 addresses.

9. Claims 5-7 and 12-14 are rejected under U.S.C. 103(a) as being unpatentable over Sundquist in view of Abrol, et al (US Pub. 2004/0004940).

Regarding claims 5-7, Sundquist discloses all of the subject matter as previously recited in this office action except the following:

further comprising the step of, upon receiving a message requesting the first mobile IPv4 address from the first mobile node, extracting an available address from a mobile IPv4 pool and assigning the extracted address to the first mobile node as the first mobile IPv4 address, as recited in claim 5;

wherein when assigning the first mobile IPv4 address, the first access node drives a timer for withdrawing the first mobile IPv4 address and assigns the first mobile IPv4 address to the mobile node until expiration of the timer, as recited in claim 6;

further comprising the step of resetting the timer for withdrawing the first mobile IPv4 address when a time extension request signal for the first mobile IPv4 address is received from the first mobile node, which was assigned the first mobile IPv4 address from the first access node, as recited in claim 7.

Abrol from the same or similar fields of endeavor discloses:

further comprising the step of, upon receiving a message requesting the first mobile IPv4 address from the first mobile node, extracting an available address from a mobile IPv4 pool and assigning the extracted address to the first mobile node as the first mobile IPv4 address; (Fig. 4, elements 56 and 60)

wherein when assigning the first mobile IPv4 address, the first access node drives a timer for withdrawing the first mobile IPv4 address and assigns the first mobile IPv4 address to the mobile node until expiration of the timer; (Fig. 4, element 58; Fig. 5, element 96; para. 35, 40)

further comprising the step of resetting the timer for withdrawing the first mobile IPv4 address when a time extension request signal for the first mobile IPv4 address is received from the first mobile node, which was assigned the first mobile IPv4 address from the first access node. (Fig. 5, element 92; para. 35, 40)

Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to combine the IPv4 address management of Abrol in the method for assigning a mobile IP of Sundquist by limiting the amount of time an IP address is assigned to the mobile node to manage the pool of IPv4 addresses when a mobile node moves to another access node. The motivation for doing so would have been to efficiently manage the scarce IPv4 addresses.

Regarding claims 12-14, Sundquist discloses all of the subject matter as previously recited in this office action except the following:

further comprising means for, upon receiving a message requesting the first mobile IPv4 address from the first mobile node, extracting an available address from a

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mobile IPv4 pool and assigning the extracted address to the first mobile node as the first mobile IPv4 address, as recited in claim 12;

wherein when assigning the first mobile IPv4 address, the first access node drives a timer for withdrawing the first mobile IPv4 address and assigns the first mobile IPv4 address to the mobile node until expiration of the timer, as recited in claim 13;

further comprising means for resetting the timer for withdrawing the first mobile IPv4 address when a time extension request signal for the first mobile IPv4 address is received from the first mobile node, which was assigned the first mobile IPv4 address from the first access node, as recited in claim 14.

Abrol from the same or similar fields of endeavor discloses:

further comprising means for, upon receiving a message requesting the first mobile IPv4 address from the first mobile node, extracting an available address from a mobile IPv4 pool and assigning the extracted address to the first mobile node as the first mobile IPv4 address; (Fig. 4, elements 56 and 60)

wherein when assigning the first mobile IPv4 address, the first access node drives a timer for withdrawing the first mobile IPv4 address and assigns the first mobile IPv4 address to the mobile node until expiration of the timer; (Fig. 4, element 58; Fig. 5, element 96; para. 35, 40)

further comprising means for resetting the timer for withdrawing the first mobile IPv4 address when a time extension request signal for the first mobile IPv4 address is received from the first mobile node, which was assigned the first mobile IPv4 address from the first access node. (Fig. 5, element 92; para. 35, 40)

Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to combine the IPv4 address management of Abrol in the apparatus for assigning a mobile IP of Sundquist by limiting the amount of time an IP address is assigned to the mobile node to manage the pool of IPv4 addresses when a mobile node moves to another access node. The motivation for doing so would have been to efficiently manage the scarce IPv4 addresses.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure (see form 892).
11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luat Phung whose telephone number is 571-270-3126. The examiner can normally be reached on M-Th 7:30 AM - 5:00 PM, F 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Firmin Backer can be reached on 571-272-6703. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/L. P./

Examiner, Art Unit 2616

/FIRMIN BACKER/

Supervisory Patent Examiner, Art Unit 2616